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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,326	02/06/2002	Benny W.H. Lai	10004400-1	8823

7590 07/27/2004

AGILENT TECHNOLOGIES INC.  
Legal Department, DL429  
Intellectual Property Administration  
P.O. Box 7599  
Loveland, CO 80537-0599

EXAMINER

TABONE JR, JOHN J

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 07/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/068,326

**Applicant(s)**

LAI, BENNY W.H.

**Examiner**

John J. Tabone, Jr.

**Art Unit**

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 February 2002.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-20 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 06 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 02062002.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

1. Claims 1-20 have been examined.

### ***Claim Rejections - 35 USC § 102***

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by

Takinosawa (US-2003/0035473), hereinafter Takinosawa.

#### Claim 1:

Takinosawa teaches the USB physical layer 18 functions to convert the parallel data received from the USB link layer 16 (core processing logic) into a serial format (serializer) and converts the data to a parallel format (deserializer) and transmits the data to the USB link layer 16 via a data bus 25. Takinosawa also teaches the data to be transmitted is first provided by the microcontroller 12 to the USB link layer 16 (core processing logic), which operates at a lower clock rate (e.g., 30 MHz) as compared to the output data rate of the USB physical layer 18. Takinosawa further teaches the USB link layer 16 (core processing logic) functions to provide data to be transmitted in a parallel format (e.g., 16 bit word) to the USB physical layer 18 via a data bus 21 (common test bus). Takinosawa discloses that the USB physical layer 18 comprises a built-in self-test circuit (TX-BIST) circuit 35 (tester), a multiplexer 36, a built-in self-test

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analyzer circuit 49 (plurality of testers). (Page 2, ¶s 22-24, Figs. 1 and 2). Takinosawa also discloses it is possible to conduct self-test on two chips (e.g. two USB physical layers) (plurality of SERDESs and testers). (Page 6, ¶ 48).

Claim 9:

Takinosawa teaches a peripheral device 10 (substrate) comprises a microcontroller 12 (core circuitry), an application layer 14, a USB link layer 16 (core circuitry) and a USB physical layer 18 (SERDESs and testers). (Page 2, ¶ 20).

Takinosawa also teaches shift register 39 functions to convert the parallel data received from the bit stuffer circuit 38 into a serial data stream and shift register 46 functions to convert the serial data received as an input signal into parallel data (SERDES). (Page 3, ¶ 25 and 26). Takinosawa further teaches when TX-BIST enable signal is active, the TX-BIST circuit 35 (functional test interface (FTI)) functions to generate a series of pseudo random data words, which are output by the TX-BIST circuit 35 and coupled to the holding register 37 via the multiplexer 36 (functional test controller (FTC)).

Takinosawa discloses that multiplexer 36 (functional test controller (FTC)) is controlled via the TX-BIST enable signal (select operational modes) to select between the data bus 21 (normal mode) or the output of the TX-BIST circuit 35 (functional test interface (FTI)) (BIST mode) as an input. (Page 3, ¶ 25 and 28, Fig. 2). Takinosawa further discloses that data to be transmitted is provided by the microcontroller 12 (external device) to the USB link layer 16 (input/output controller (IOC)) which functions to provide data to be transmitted in a parallel format (e.g., 16 bit word) to the USB physical

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layer 18 via a data bus 21 (common test bus) as well as transmit control signals 23 (addressable commands). (Page 2, ¶ 22).

Claim 15:

Takinosawa teaches when TX-BIST enable signal is active (enables test controllers), the TX-BIST circuit 35 (test interface) functions to generate a series of pseudo random data words (parallel data), which are output by the TX-BIST circuit 35 and coupled to the holding register 37 via the multiplexer 36 (test controller).

Takinosawa also teaches that multiplexer 36 (test controller) is controlled via the TX-BIST enable signal (triggering test operations) to select between the data bus 21 (normal mode) or the output of the TX-BIST circuit 35 (test interface) (BIST mode) as an input. (Page 3, ¶ 25 and 28, Fig. 2). Takinosawa also discloses it is possible to conduct self test on two chips (e.g. two USB physical layers) (plurality of test interfaces and test controllers). (Page 6, ¶ 48).

Claim 2:

Takinosawa teaches a peripheral device 10 (semiconductor substrate) comprises a microcontroller 12 (core processing logic), an application layer 14, a USB link layer 16 (core processing logic) and a USB physical layer 18 (SERDESs and testers). (Page 2, ¶ 20).

Claims 3 and 10:

Takinosawa further teaches when TX-BIST enable signal is active, the TX-BIST circuit 35 (functional test interface (FTI)) functions to generate a series of pseudo random data words, which are output by the TX-BIST circuit 35 and coupled to the

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holding register 37 via the multiplexer 36 (tester controller). Takinosawa discloses that multiplexer 36 (tester controller) is controlled via the TX-BIST enable signal (select operational modes) to select between the data bus 21 (normal mode) or the output of the TX-BIST circuit 35 (tester interface) (BIST mode) as an input. (Page 3, ¶ 25 and 28, Fig. 2).

Claims 4, 11 and 20:

Takinosawa teaches when TX-BIST enable signal is active, the TX-BIST circuit 35 (tester interface) functions to generate a series of pseudo random data words (test pattern generator) and is connected to the parallel data on data bus 21. Takinosawa also teaches The BIST analyzer circuit 49 (error detector), whose input is coupled to the output of the holding register 48 and receives the decoded, unstuffed test data via the bus 25 (parallel data from SERDES), then functions to compare the received test data with the known test data generated by the TX-BIST circuit 35 and generate an error if the expected data is not received. (Page 3, ¶ 28, Page 4, ¶ 31, Fig. 2).

Claim 5:

Takinosawa teaches the USB link layer 16 (core processing logic) functions to provide data to be transmitted in a parallel format (e.g., 16 bit word) to the USB physical layer 18 (SERDESs) via a data bus 21 (common test bus).

Claims 6 and 16:

Takinosawa teaches that data to be transmitted is provided by the microcontroller 12 (external device) to the USB link layer 16 (input/output controller) which functions to provide data to be transmitted in a parallel format (e.g., 16 bit word) to the USB physical

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layer 18 via a data bus 21 (common test bus) as well as transmit control signals 23 (addressable commands). (Page 2, ¶ 22).

Claims 7, 12 and 18:

Takinosawa teaches that the USB physical layer 18 (SERDES) comprises a built-in self-test circuit (TX-BIST) circuit 35 (tester comprising a BIST state machine), a multiplexer 36, a built-in self-test analyzer circuit 49 (plurality of testers) and is connected to the data bus 21 (test bus). (Page 2, ¶ 24, Fig. 2).

Claim 8:

Takinosawa teaches when TX-BIST enable signal is active, the TX-BIST circuit 35 (tester) functions (responsive to individual commands) to generate a series of pseudo random data words (individually but concurrently operated), which are output by the TX-BIST circuit 35 and coupled to the holding register 37 via the multiplexer 36 (tester). (Page 3, ¶ 28).

Claim 13:

Takinosawa teaches that data to be transmitted is provided by the microcontroller 12 (external device) to the USB link layer 16 (IOC) which functions to provide data to be transmitted in a parallel format (e.g., 16 bit word) to the USB physical layer 18 (FTI) via a data bus 21 (common test bus) as well as transmit control signals 23 (addressable commands). (Page 2, ¶ 22).

Claim 14:

Takinosawa teaches The USB link layer 16 (IOC) provides transmit control signals 23 to the USB physical layer 18 (FTI), which function as trigger signals



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indicating that the data transferred is valid and can be transmitted by the USB physical layer 18 (FTI) (IOC enabled to manipulate FTI).

Claim 17:

Takinosawa teaches when TX-BIST enable signal is active, the TX-BIST circuit 35 (tester) functions (enabling all test interfaces) to generate a series of pseudo random data words, which are output by the TX-BIST circuit 35 and coupled to the holding register 37 via the multiplexer 36 (test controller). Takinosawa also teaches The BIST analyzer circuit 49 (tester), whose input is coupled to the output of the holding register 48 and receives the decoded, unstuffed test data via the bus 25, then functions to compare the received test data with the known test data generated by the TX-BIST circuit 35 and generate an error if the expected data is not received (monitor performance of SERDES). (Page 3, ¶ 28, Page 4, ¶ 31).

Claim 19:

Takinosawa also discloses it is possible to conduct self test on two chips (e.g. two USB physical layers) (forming an insulative package). (Page 6, ¶ 48).

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Schneider (US-6201829)

Schneider teaches SERDES, FTI, FTC, error detector, BIST pattern generator. (Claims 1-7, 9 and 15)

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Lesea (US-2003/0023912)

Lesea teaches built-in self-test (BIST) of a plurality of SERDES, tester that includes a pattern generator 230 and pattern checker 242. (Claims 1-7, 9 and 15)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Tabone, Jr. whose telephone number is (703) 305-8915. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John J. Tabone, Jr.  
Examiner  
Art Unit 2133



*Spuy J. Lamare*  
Primary Examiner